WHAT IS CLAIMED IS:

1.   A method of detecting T wave lability in an individual, the method comprising:

obtaining signals representative of electrical activity of the heart of said individual; and

detecting non-alternating beat-to-beat fluctuations in T wave morphology in said signals,

wherein said non-alternating beat-to-beat fluctuations in said T wave morphology is indicative of an individual having T wave lability.

2.   The method of claim 1, further comprising administering a chemical stressor to said individual.

3.   The method of claim 2, wherein said chemical stressor is a catecholamine compound.

4.   The method of claim 3, wherein said catecholamine compound is selected from the group consisting of dobutamine, epinephrine, phenylephrine and atropine.

5.   The method of claim 1, wherein the amount of said chemical stressor is selected to achieve a heart rate within a desired range.

6.   The method of claim 5, wherein said range is greater than 100 beats per minute.

7.   The method of claim 1, wherein said electrical signal is obtained from a precordial lead V4.

8.   The method of claim 1, wherein said electrical signals are generated into an electrocardiogram.

9.   The method of claim 1, wherein the heart rate of said individual is monitored.

10.   A method for detecting or monitoring abnormal cardiac activities in an individual, the method comprising:

obtaining signals representative of electrical activity of the heart of said individual; and

detecting the presence of non-alternating beat-to-beat fluctuations in T wave morphology in said signals,

wherein the presence of non-alternating beat-to-beat fluctuations in T wave morphology is indicative of abnormal cardiac activities in said individual.

11.   The method of claim 10, further comprising administering a chemical stressor to said individual.

12.   A method of assessing the risk of an individual for sudden death due to cardiovascular pathology, the method comprising:

obtaining signals representative of electrical activity of the heart of said individual;

detecting the presence of non-alternating beat-to-beat fluctuations in T wave morphology in said signals; and

determining a T wave lability index from said non-alternating beat-to-beat fluctuations in T wave morphology,

wherein a T wave lability index that is significantly different than a reference value is indicative of an increased risk of said individual for sudden death due to a cardiovascular disease.

13.   The method of claim 12, further comprising administering a chemical stressor to said individual.

14. The method of claim 12, wherein said cardiovascular pathology is selected from the group consisting of long QT syndrome, hypertrophic cardiomyopathy, dilated cardiomyopathy, coronary artery disease, myocardial ischemia, idiopathic ventricular fibrillation and Brugada syndrome.

15. The method of claim 12, wherein said individual presents with QT prolongation, QT variability, ectopy, TWA, OHCA, syncope, angina, late potentials, QT dispersion, wide complex tachycardia, unexplained seizures and unexplained near drownings.

16. A method of obtaining a T wave lability index for an individual, the method comprising:

obtaining signals representative of electrical activity of the heart of said individual;

eliminating ectopic beats and the sinus beats preceding and following said ectopic beats; and

calculating the maximal value of root-mean-square differences for isochronic points of the repolarization interval between pairs of consecutive beats,

thereby obtaining a T wave lability index.

17. The method of claim 16, wherein said ectopic beats comprise a ventricular premature contraction or an atrial premature contraction.

18. The method of claim 16, further comprising the step of filtering said signal prior to said calculating.

19. The method of claim 16, further comprising the step of removing baseline fluctuation from said signal prior to said calculating.

20. The method of claim 16, further comprising the step of normalizing said maximal value of root-mean-square differences to the absolute magnitude of the signal-averaged QRS complex after said calculating.

21. A method, the method comprising: identifying non-alternating beat-to-beat fluctuations in T wave morphology in signals representative of electrical activity of the heart of an individual; and calculating a T wave lability index as a function of said non-alternating beat-to-beat fluctuations in T wave morphology.

22. A computer-readable storage medium having instructions stored thereon for causing a programmable processor to:

identify non-alternating beat-to-beat fluctuations in T wave morphology in signals representative of electrical activity of the heart of an individual; and

determine a T wave lability index as a function of said non-alternating beat-to-beat fluctuations in T wave morphology.

23. The computer-readable storage medium of claim 22, wherein said determining a T wave lability index as a function of said non-alternating beat-to-beat fluctuations in T wave morphology comprises eliminating ectopic beats and the sinus beats preceding and following said ectopic beats and calculating the maximal value of root-mean-square differences for isochronic points of the repolarization interval between pairs of consecutive beats.

24. The computer-readable storage medium of claim 23, wherein said ectopic beats comprise a ventricular premature contraction or an atrial premature contraction.

25. The computer-readable storage medium of claim 23, wherein said determining a T wave lability index as a function of said non-alternating beat-to-beat fluctuations in T wave morphology further comprises filtering said signal prior to said calculating.

26. The computer-readable storage medium of claim 23, wherein said determining a T wave lability index as a function of said non-alternating beat-to-beat fluctuations in T wave morphology further comprises removing baseline fluctuation from said signal prior to said calculating.

27. The computer-readable storage medium of claim 23, wherein said determining a T wave lability index as a function of said non-alternating beat-to-beat fluctuations in T wave morphology further comprises normalizing said maximal value of root-mean-square

5 differences to the absolute magnitude of the signal-averaged QRS complex after said calculating.

28. An apparatus for determining a T wave lability index for an individual, said apparatus comprising:

10 one or more transducers for obtaining signals representative of electrical activity of the heart of said individual; and

a processor for analyzing said electrical signals and determining said T wave lability index.

15 29. The apparatus of claim 28, wherein said transducers are electrodes.

30. The apparatus of claim 28, wherein said obtaining said signals and said analyzing said signals occurs concurrently.

20 31. The apparatus of claim 28, wherein said processor filters said electrical signal.

32. The apparatus of claim 28, wherein said processor removes baseline noise from said electrical signal.

25 33. The apparatus of claim 28, wherein said processor normalizes said maximal value of root-mean-square differences to the absolute magnitude of the signal-averaged sinus beats.

34. The apparatus of claim 28, wherein said apparatus generates a visual

30 representation of the electrical signals.

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35.   The apparatus of claim 28, wherein said apparatus generates a signal indicative of the presence of ectopic beats.

36.   An article of manufacture for chemically stressing an individual for the

5   purpose of determining a T wave lability index for said individual, the kit comprising:

a vial comprising an appropriate dose of a catecholamine compound;

at least one additional vial comprising a different dose of the same or a different catecholamine compound, wherein each of said doses are different concentrations of said catecholamine compound(s), wherein each of said vials are labeled with said dose;

10   a label or package insert, wherein said label or package insert indicates that the kit contents are used in a procedure to determine a T wave lability index.

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